

Localized Necrotizing Periodontitis: A Possible Oral Manifestation of COVID-19

Periodontitis Necrosante Localizada: Una Posible Manifestación Oral de la COVID-19

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ABSTRACT: We investigated an unusual report of localized necrotizing periodontitis coinfection in patients with mild COVID-19. Male patient, 30 years old, with previous medical history of hypovitaminosis, immunized with two doses of the Pfizer® vaccine, attended in a dental college in northern Brazil with an acute dental emergency reporting itching, halitosis, intense gingival pain and spontaneous bleeding, mild fever of 37.8°C, dry cough, muscle pain and nausea. Metronidazole and chlorhexidine were prescribed to improve the necrotizing condition, to treat periodontitis scaling and root planing (SRP) were performed associated with chlorhexidine irrigation and oral hygiene instructions, which treated the patients conditions. COVID-19 coinfections are possible, specially, oral bacterial infections which is demonstrated in this report, so correct treatment is necessary for both infections. This letter describes the first known occurrence of severe localized necrotizing periodontitis in the urban area of Brazil's Amazon region.

KEY WORDS: COVID-19, periodontitis, co-infection, SARS-CoV-2.

Dear Editor

Since the COVID-19 pandemic outbreak, we have been following with interest the literature on possible co-infections between SARS-CoV-2 and oral pathogens such as periodontal bacteria (Larvin *et al.*, 2020; Iranmanesh *et al.*, 2021; Garcia-Vidal *et al.*, 2021). And we believe that the increase number of COVID-19 cases and its high mortality in the last two years, especially in the pre-vaccination period, at first in individuals with medical conditions or comorbidities, like heart disease or diabetes then later in "healthy" individuals, which was initially linked to the pro-inflammatory cascade caused by SARS-CoV-2 infection, however, as studies progress, it was suggested that secondary infections, significantly, increased COVID-19 patient's morbidity often requiring mechanical ventilation or Intensive Care Unit (ICU) cares (Garcia-Vidal *et al.*, 2021).

In most severe cases of COVID-19, pneumonia signs and symptoms were registered, and the main

pathogens identified were *S. pneumoniae* and *S. aureus*, which led to the use of antibiotic therapy, such as azithromycin, to treat this pneumonia signs and symptoms, evidencing that bacterial coinfections are common complications described in patients infected with COVID-19 (Rawson *et al.*, 2020). Clinical analysis of systemic diseases and bacterial co-infections indicates similarity with periodontal diseases (PD). Evidence indicates that patients with periodontitis and patients with systemic diseases, such as heart disease, respiratory diseases and diabetes, are more vulnerable to the development of oral dysbiosis and the worsening of their systemic conditions (Rawson *et al.*, 2021).

Due to the lack of oral hygiene conditions in hospital and ICU, intraoral intubation materials and mechanical ventilation, consequently, will increase dental biofilm and associated with immunosuppression, there will be a spontaneous increase in the prevalence of PD, as well as acute periodontal lesions, such as

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necrotizing periodontitis (NP) (Fonseca *et al.*, 2021). NP is the severe form of PD and is caused by *P. intermedia*, *P. gingivalis*, *T. forsythia* and *F. nucleatum*, which are also mediated by immunosuppression conditions such as malnutrition, comorbidities or HIV infection, although there is little evidence regarding NP and COVID-19 coinfection, as an attempt to clarify the co-infection a metagenomic study show a possible co-infection because *Prevotella*, *Streptococcus*, *Fusobacterium* and *Treponema* were detected in COVID-19 infected samples indicating a co-infection and cytokine storm (Chakraborty, 2020; Sahni & Gupta, 2020; Patel & Woolley, 2021). We present a case of a patient with NP and mild COVID-19.

Male patient, 30 years old, with previous medical history of hypovitaminosis, immunized with two doses of the Pfizer® vaccine, attended in a dental college in northern Brazil with an acute dental emergency reporting itching, halitosis, intense gingival pain and spontaneous bleeding. Outpatient intraoral examination revealed erythematous and edematous gums in the region of teeth 12/13 and 41/42/43, purulent secretion, bleeding, loss of clinical attachment level, presence of black space, right submandibular lymphadenopathy, dental biofilm, hygiene unsatisfactory mouth and even during the care the patient reported a mild fever of 37.8 °C, dry cough, muscle pain and nausea (Fig. 1). Based on the clinical picture, the suggestive diagnosis was necrotizing periodontitis. And although there was suspicion of COVID-19 during outpatient care, due to the emergency nature of the case, there was care and as it was not possible to provide PCR tests at the moment, the patient was advised to seek to perform the exam. Metronidazole 250 mg 3 times a day for 7 days was prescribed, mouthwash with chlorhexidine 0.12 % 3 times a day for 14 days, mechanical tissue debridement through scaling and root planing (SRP) of the affected regions with Gracey curettes and irrigation with 0.12 chlorhexidine, % and oral hygiene instruction (Fonseca *et al.*, 2021). Following the guidelines of the World Health Organization (WHO) and the Brazilian Ministry of Health, in case of suspicion, the patient was advised to remain at home in quarantine for 5 to 7 days until symptoms are emitted. The patient was contacted 7 days after the first SRP session and 14 days after the first SRP session, demonstrating complete resolution of his periodontal and systemic symptoms. During the second consultation, the patient reported having performed the PCR exam, confirming the suspicion of bacterial co-infections with COVID-19, which possibly directly affected the severity of both pathologies.



Fig. 1. Patient's initial clinical symptoms.

When analyzing the description above, we found that we still understand little about the possible co-infections of COVID-19, and there is an urgent need to study them, because as reported, probably the infection by SARS-CoV-2, together with the unfavorable situation of oral hygiene, provided worsening of PD resulting in a necrotizing disease, we therefore recommend that health professionals seek information about COVID-19 co-infections, especially bacterial ones, and routinely perform intra-oral examinations to identify early lesions and prevent increased morbidity and mortality from COVID-19.

Ethical approval. This study was conducted in accordance with the Declaration of Helsinki, and patient provided the informed and written consent to this report.

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RESUMEN: Investigamos un reporte inusual de coinfección de periodontitis necrotizante localizada en pacientes con COVID-19 con síntomas leves: Paciente masculino, de 30 años, con antecedentes médicos de hipovitaminosis, inmunizado con dos dosis de la vacuna Pfizer®, atendido en una facultad de odontología en el norte Brasil, con urgencia dental aguda reportando prurito, halitosis, dolor gingival intenso y sangrado espontáneo, fiebre leve de 37,8 °C, tos seca, mialgias y náuseas. Se prescribió metronidazol y clorhexidina para mejorar el cuadro necrosante, para tratar la periodontitis se realizó raspado y alisado radicular (SRP) asociado a irrigación con clorhexidina e instrucciones de higiene oral. Las coinfecciones por COVID-19 son posibles, especialmente las infecciones bacterianas orales, lo cual se demuestra en este reporte, por lo que es necesario un correcto tratamiento de ambas infecciones. Esta carta describe la primera aparición conocida de periodontitis necrotizante severa de un paciente del área urbana de la región amazónica de Brasil.

PALABRAS CLAVE: COVID-19, periodontitis, coinfección, SARS-CoV-2.

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